REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 22-28 are cancelled, and claims 29-38 have been added. Claims 1-21 remain in this application as amended herein. Accordingly, claims 1-21 and 29-38 are submitted for the Examiner's reconsideration.

The title of the invention and the specification have been amended to correct minor errors. No new matter has been added.

In the Office Action, claims 1-3, 5-9, 11-15 and 17-23 were rejected under 35 U.S.C. § 102(a) as being anticipated by Shirasaka (U.S. Patent No. 5,838,298). It is submitted, however, that the claims are patentably distinguishable over Shirasaka.

When polygon data representing a three-dimensional image is rendered into data representing pixels arranged on a two-dimensional plane, aliasing occurs and results in the presence of stair/step-like distortions and flickering. Conventional systems correct the aliasing by dividing each pixel of the image into sub-pixels, calculating the intensity of light of each sub-pixel using ray tracing, and then averaging the calculated intensities of light of each sub-pixel of the pixel. The number of calculations needed to carry out such antialiasing, however, precludes the antialiasing of a dynamic image in real time. Alternative conventional systems perform antialiasing by first generating a high-resolution image and then filtering the image to decrease the number of pixels. Such systems, however, require high-capacity and high-speed buffer memories, resulting in higher manufacturing costs and increased apparatus size.

The present invention addresses these problems by extracting data representing a predetermined line part from data representing a three-dimensional image, forming an antialiased

image portion by antialiasing the extracted data, and overwriting the antialiased image portion onto a corresponding portion of a rendered image.

The Shirasaka patent is directed to the smooth drawing and outputting of the contour lines of a graphic image. The patent describes that, *first,* a graphic image *drawn in a dot plane* is stored within the image memory, and *then,* stairway-like slant portions of the contour lines are detected and smoothed. (See col. 1, lines 36-51 and col. 2, lines 61-65). Shirasaka thus describes smoothing a *two-dimensional image*. When a three-dimensional image is displayed, the three-dimensional image is rendered into the two-dimensional dot plane and stored in memory *before* smoothing. Shirasaka therefore provides examples of the conventional image rendering apparatus set out in paragraph [0008] of the present application. The reference does not suggest extracting data representing a predetermined line part from data representing a three-dimensional image.

Shirasaka does not suggest:

> extracting means for extracting data representing a predetermined line part from data representing a three-dimensional image

as called for in claim 1.

It follows that Shirasaka does not suggest the combination called for in claim 1 and does not anticipate the claim.

Claims 2-3 and 5-6 depend from Claim 1 and further define and limit the invention set out in the independent claim. Therefore, each of claims 2-3 and 5-6 likewise defines a combination that is patentably distinguishable over the reference.

Independent claim 7 is directed to an image rendering method that includes limitations similar to those set out in

Claim 1. Claim 7 is thus distinguishable over Shirasaka at least for the same reasons.

Claims 8-9 and 11-12 depend from Claim 7 and are similarly distinguishable over the reference.

Independent claim 13 relates to a computer-readable storage medium having a computer program stored therein for operating an apparatus to perform an image rendering method similar to that defined in Claim 7. Claim 13 is likewise distinguishable over Shirasaka.

Claims 14-15 and 17-18 depend from Claim 13 and, similarly, are distinguishable over Shirasaka.

Independent claim 19 defines a server apparatus that includes a computer-readable storage medium similar that defined in Claim 13 and is distinguishable over Shirasaka at least for the same reasons.

Moreover, Shirasaka does not suggest the distributing means defined in claim 19.

As to independent claim 20, Shirasaka does not suggest:

> extracting a portion of data representing a three-dimensional image, the portion including data representing a predetermined line part of the rendered image

for the reasons set out above regarding claim 1.

Claims 22-23 are cancelled.

Accordingly, the withdrawal of the rejection of Claims 1-3, 5-9, 11-15 and 17-23 under 35 U.S.C. § 102 is respectfully requested.

The Examiner also rejected Claims 4, 10 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Shirasaka in view of Kaasila (U.S. Patent No. 6,437,793). It is submitted, however, that the claims are patentably distinguishable over the references.

Claim 4 depends from Claim 1, Claim 10 depends from Claim 7, and Claim 16 depends from Claim 13, and each is distinguishable over Shirasaka at least for the same reasons. Additionally, Shirasaka does not suggest the limitations called for in claims 4, 10 or 16, as acknowledged by the Examiner.

The Kaasila patent is directed to antialiasing two-dimensional shapes that are displayed at a lower pixel resolution than an outline description of the shape. The antialiasing is carried out by calculating pixel coverage values of a bitmap representation of the character. (See col. 1, line 49 - col. 2, line 13; and col. 11, lines 30-54). Kaasila does not remedy the deficiencies of Shirasaka.

Accordingly, the withdrawal of the rejections of claims 4, 10 and 16 under 35 U.S.C. § 103 is respectfully requested.

New claim 29 depends from claim 1, new claim 30 depends from claim 7, new claim 31 depends from claim 13, and new claim 32 depends from claim 20, and each is distinguishable over the cited art at least for the same reasons. Support for these claims is found in Fig. 4 and paragraphs [0069]-[0072] of the specification.

New claim 33, from which claims 34-35 depend, is directed to an image rendering apparatus having limitations similar to those set out in claim 29, and new claim 36, from which claims 37-38 depend, is directed to an image rendering method similar to the method defined in claim 20. Claims 33-38 are distinguishable over the cited art at least for the same reasons.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited. If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested

that the Examiner telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which the Examiner might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: February 10, 2004

Respectfully submitted,

By _____

Lawrence E. Russ
Registration No.: 35,342
LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK, LLP
600 South Avenue West
Westfield, New Jersey 07090
(908) 654-5000
Attorney for Applicant

469723_1.DOC